

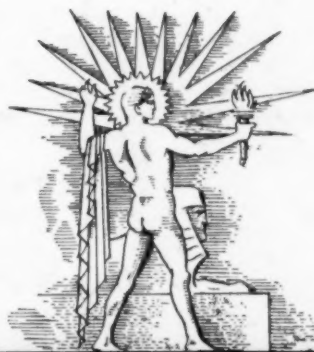
RECEIVED
15¢

PUBLIC LIBRARY

MAR 17 1942

SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE •



March 14, 1942

Wood for War

See Page 170

A SCIENCE SERVICE PUBLICATION

Do You Know?

Arizona's *Grand Canyon* is not one but thousands of canyons worn away by water.

Barracudas are responsible for many of the attacks on bathers blamed on sharks.

More than 3,000 Red Cross trained first-aiders were at work at Pearl Harbor on Dec. 7.

Speed of a highly trained boxer's *punch* is about 40 miles per hour—the average man's punch is about half that.

Contrary to popular opinion, *lightning* strokes are more severe at low altitudes than in high mountainous regions.

Ponds and meadows created by *beaver dams* are providing sanctuaries for Canadian wild ducks and geese in the James Bay region.

Occupational accident deaths last year amounted to 18,000—6% higher than the preceding year, National Safety Council figures show.

Shoes with wooden soles and paper tops are to be offered Norwegians in the face of a serious shoe shortage, according to Norwegian Government sources in Washington.

To help meet the war shortage of oil for *hog fattening* purposes, American farmers are being counted on to raise 5,000,000 acres of peanuts this year—3,000,000 more acres than in 1941.

QUESTIONS DISCUSSED IN THIS ISSUE

Most articles which appear in SCIENCE NEWS LETTER are based on communications to Science Service, or on papers before meetings. Where published sources are used they are referred to in the article

AVIATION

What recommendations have been made for streamlining college courses for aviation students? p. 163.

CHEMISTRY

How can wood be treated so that it can be twisted like rope? p. 170.

ENGINEERING

How have hand-skill workers for world of amusements been "converted" to machine work for democracy at war? p. 164.

ETHNOLOGY

How are Japanese in Hawaii proving their loyalty to the United States? p. 172.

HANDICRAFT

How can you make blackout shades of paper p. 169.

MEDICINE

What discovery gives support to the virus theory of human cancer? p. 165.

NUTRITION—PSYCHOLOGY

How do soldiers in action get their sweets and smokes? p. 172.

PHYSICS

What can you find out about a diamond by burning it in an electric arc? p. 163.

PUBLIC HEALTH

How can you make splints for emergency use? p. 168.

What criticism has been made of the new plan for examining selectees? p. 166.

What disease is expected to plague the hungry warring nations? p. 165.

What health advantages has the sugar rationing? p. 164.

VOLCANOLOGY

Why is it considered unlikely that bombs could cause a volcano to erupt? p. 167.

The *whale shark* is so sluggish it sometimes fails to avoid collision with ships.

The early Egyptians were expert *glass-makers*; artisans prepared glass of many colors, artificial gems and even enamels.

More *marriages*—1,565,000—took place in the United States in 1940 than in any previous year, according to the Bureau of the Census.

More Americans were killed in November *traffic* last year than by enemy bombers at Pearl Harbor, the National Safety Council states.

"*Whistling arrows*" were used by the ancient Chinese.

In Arabia, *coffee* was first drunk only by learned and religious persons.

Lucite, methyl methacrylate, makes ideal chin rests for violins—it clings to the musician's chin, gives him a firmer grip on the instrument.

Modern military aircraft must have *air speeds* of 400 miles per hour or more, according to the National Advisory Committee for Aeronautics.

SCIENCE NEWS LETTER

Vol. 41 MARCH 14, 1942 No. 11

The Weekly Summary of Current Science, published every Saturday by SCIENCE SERVICE, Inc., 1719 N St., N. W., Washington, D. C. NOrth 2255. Edited by WATSON DAVIS.

Subscriptions—\$5.00 a year; two years, \$7.00; 15 cents a copy. Ten or more copies to same address, 5 cents a copy. Back numbers more than six months old, 25 cents.

In requesting change of address, please give your old address as well as the new one, at least two weeks before change is to become effective.

Copyright, 1942, by Science Service, Inc. Reproduction of any portion of SCIENCE NEWS LETTER is strictly prohibited. Newspapers, magazines and other publications are invited to avail themselves of the numerous syndicate services issued by Science Service.

Cable address: Scienserv, Washington.
New York office: 310 Fifth Avenue, CHickering 4-4565.

Entered as second class matter at the post-

office at Washington, D. C., under the Act of March 3, 1879. Established in mimeographed form March 18, 1922. Title registered as trademark, U. S. and Canadian Patent Offices. Indexed in Readers' Guide to Periodical Literature, Abridged Guide, and in the Engineering Index.

The Science Observer, established by the American Institute of the City of New York, is now included in the SCIENCE NEWS LETTER.

The New York Museum of Science and Industry has elected SCIENCE NEWS LETTER as its official publication to be received by its members.

Member Audit Bureau of Circulation. Advertising Representatives: Howland and Howland, Inc., 393 7th Ave., N. Y. C., Pennsylvania 6-5566; and 360 N. Michigan Ave., Chicago, STate 4439.

SCIENCE SERVICE is the Institution for the

Popularization of Science organized 1921 as a non-profit corporation.

Board of Trustees—Nominated by the American Association for the Advancement of Science:

Henry B. Ward, University of Illinois; Edwin G. Conklin, American Philosophical Society; J. McKen Cattell, Editor, Science. Nominated by

the National Academy of Sciences: R. A. Millikan, California Institute of Technology; Harlow

Shapley, Harvard College Observatory; William

H. Howell, Johns Hopkins University. Nominated by the National Research Council: Ross

G. Harrison, Yale University; C. G. Abbot, Secretary, Smithsonian Institution; Harrison E.

Howe, Editor, Industrial and Engineering Chemistry. Nominated by the Journalistic Profession:

O. W. Riegel, Washington and Lee School of Journalism; A. H. Kirchhofer, Buffalo Evening

News; Neil H. Swanson, Executive Editor, Sun Papers. Nominated by the E. W. Scripps Estate:

Frank R. Ford, Evansville Press; Warren S. Thompson, Miami University, Oxford, Ohio;

Harry L. Smithton, Cincinnati, Ohio.

Officers—Honorary President: William E. Ritter. President: Edwin G. Conklin. Vice-President and Chairman of Executive Committee: Harlow Shapley. Treasurer: O. W. Riegel. Secretary: Watson Davis.

Staff—Director: Watson Davis. Writers: Frank Thone, Jane Stafford, Marjorie Van de Water, Morton Mott-Smith, Edwin Neff. Science Clubs of America: Joseph H. Kraus, Margaret E. Patterson. Photography: Fremont Davis. Librarian: Minna Gill. Business Manager: Alvin C. Stewart. Sales and Advertising: Hallie Jenkins, Austin Winant. Correspondents in principal cities and centers of research.

AVIATION

Streamlined College Course Recommended for Pre-Training

To Speed Training of Aviation Personnel, Committee Of Secretary of War Offers Plan for 12-Week Course

STREAMLINING of college courses in mathematics, physics, astronomy and weather science to offer pre-training for the 450,000 new aviation personnel required this year and next for President Roosevelt's expanded aviation program is recommended in the report of a committee appointed by the Secretary of War.

The committee, which was nominated by the American Association for the Advancement of Science, consists of Dr. William L. Hart, University of Minnesota, Dr. W. M. Whyburn, University of California at Los Angeles, and Dr. C. C. Wylie, University of Iowa. They studied the problem of the ground training and preliminary training that might be given in high schools and colleges to insure an adequate flow into the armed forces of properly trained pilots, navigators, bombardiers and other aviation personnel. They observed the training in progress at Maxwell Field and other fields in the Southeast Air Corps Training Center.

The magnitude of this job facing educational institutions is revealed in an announcement by Dr. F. R. Moulton, permanent secretary of the Association, of the planned streamlined curriculum for colleges.

"The program of production of military planes which President Roosevelt announced two or three weeks ago (50,000 planes in 1942 and 125,000 in 1943) calls for at least a trained aviation personnel of 150,000 men this year and 300,000 next year," he said. "An unknown fraction of these requirements will have had a considerable part of the necessary college training and will enter the service directly.

"It will be of very great aid to the national defense to give as many of the remainder as possible most of their pre-training in educational institutions. If the numbers to be trained in schools should be half of the total required, or 75,000 and 150,000 in the two years, the number of classes would necessarily be enormous and the facilities of the universities would be taxed. Consequently,

it is important to start the courses at once in as many institutions as possible, partly to prepare men for the air service as rapidly as possible and partly to gain experience for a greatly increased effort. It is likely that many changes and improvements will be made in present plans under the teachings of experience."

The new college course as outlined by the committee can be telescoped into 11 or 12 weeks for students who have had advanced high school algebra and some solid geometry, the committee believes.

Emphasis throughout is on practical applications and manipulation. Theory is kept to the minimum necessary for understanding of the work.

In the plane trigonometry course, students will use a slide rule and each is

expected to possess a cheap one of his own. In solid geometry, proofs will be held to a bare minimum; great emphasis will be placed on the drawing of figures and making simple paper models for three-dimensional situations. In spherical trigonometry, emphasis will be on problems of latitude, longitude and the astronomical triangle on the celestial sphere; examinations will be of the "open book" type, the object being to give the student confidence later in the use of navigation tables. Problems of the navigator will be kept in mind in the astronomy and weather course. The physics course will not be of the theoretical type.

Science News Letter, March 14, 1942

PHYSICS

Burning Diamonds Shows Why Some Fluoresce

WHY some genuine diamonds fluoresce or glow a brilliant blue, others a yellow and most of them not at all, when exposed to ultraviolet (or "black") light, was revealed by burning the precious stones in an electric arc.

This is the first time that so drastic a method has been used to determine the cause of fluorescence in diamonds



DRASTIC TEST

Burning a diamond in the electric arc to find out what it's made of. Standing, James M. Orr, and seated, Jack DeMent.

which milder methods had failed to disclose. The light from the burning diamond was analyzed by a powerful spectrograph, an instrument which sorts out the light of the burning diamond according to its various wave lengths, and tells what elements are present in the stone as impurities.

These impurities were found to be the cause of the various types of fluorescence. The blue-glowing diamond was

found to contain chromium and titanium as the principal impurities, the yellow-glowing gem contained aluminum, and the non-fluorescing stones were almost pure carbon.

The investigators were James M. Orr, spectroscopist, and Jack DeMent, chemist, both of Portland, Oregon, who report full details of the investigation in the current issue of *The Mineralogist*.

Science News Letter, March 14, 1942

PUBLIC HEALTH

Sugar Rationing Called a "Godsend" to National Health

Without Sugar, People Will Substitute Other Foods Containing Vitamins Lacking in Refined Sugar

MOST Americans have too sharp a sweet tooth, and a little sugar rationing will do them more good than harm, according to dentists and diet authorities.

Psychologists unofficially hint that millions of citizens who "have always intended to cut out sweets, some day," will now find the push from Uncle Sam most helpful.

M. L. Wilson, assistant director of nutrition, of the health and welfare defense program, declares:

"Sugar rationing certainly will harm

no one. People will meet the restriction on sugar by adding calories from other sources—sources which contain vitamins and minerals lacking in our refined sugar."

Dr. L. H. Newburgh, University of Michigan authority on diet, advises:

"Don't complain about sugar rationing; it will be good for you. As a matter of fact, it would be a Godsend if there were no sugar at all.

"For, if there weren't, we would be forced to eat more grains, meats, milk, green vegetables and other foods which

give us everything that sugar does plus much-needed B vitamins and minerals."

Dr. Newburgh points out that sugar's only importance to our diets is its fuel value, and this may be readily replaced by a host of other foods which provide more than mere fuel.

Milk is the best fuel substitute for sugar, he continues, since it also provides proteins, vitamins, salts and fats. One glass of milk, he says, is equal in fuel content to four teaspoonfuls of sugar.

Whole cereals are a much more wholesome food than sugar, since they provide, in addition to fuel, vitamins of the important B group and 10% of protein. An ordinary portion of oatmeal, for example, is equal in fuel value to four teaspoonfuls of sugar.

Dr. Russell Bunting and associates of the University of Michigan School of Dentistry state in a recent report that sugar is a very important causative factor in tooth decay.

"A remarkably low degree of (decay) was observed in children on a low-sugar diet deficient in calcium, phosphorus and vitamin D. Active caries (decay) was induced in children by increasing the sugar intake while they were receiving a diet that nutritionally was adequate." Low-sugar diets, they add, as a rule help keep children free of tooth decay.

Science News Letter, March 14, 1942

ENGINEERING

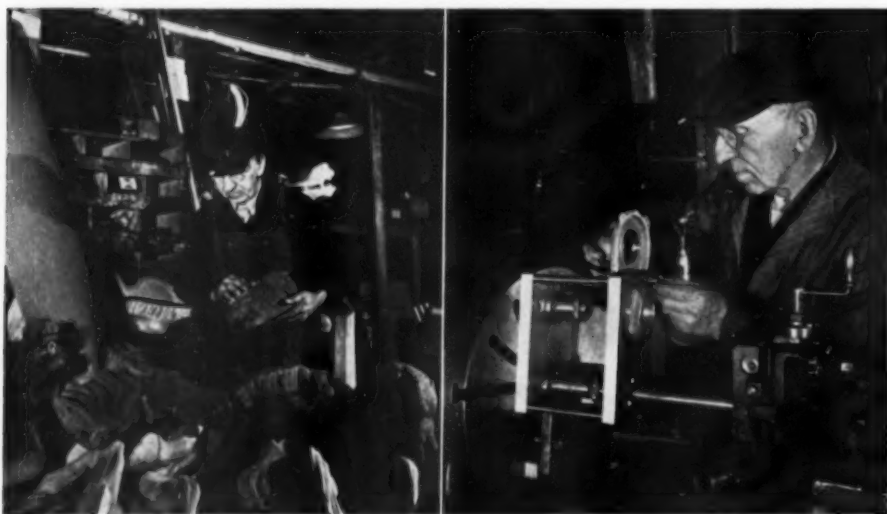
Merry-Go-Round Maker Converts Plant for War

WORKMEN who once made merry-go-rounds, chute-the-chutes and other thrill rides loved by every American from Coney Island to Los Angeles' Ocean Park, now are turning out implements of war, says the new War Production Board.

According to the WPB, one of the world's largest amusement park equipment makers has abandoned its peacetime business completely for war orders.

Craftsmen who for a quarter of a century carved wooden horses' heads for youngsters to clasp on the carousel, now are at work on a lathe. Artists who painted modernistic designs for "silverstream" rides, learned to make die castings.

Machines which shaped the tracks for roller-coasters, "whips," caterpillar rides, now bend hooks for airplane packing cases, while workers once used to building ferris-wheel towers, now build towers used by repairmen to reach the noses of giant bombers.



BEFORE

AFTER

The same skilled hands that carved the gay horses for merry-go-rounds are now applying their dexterity to making the implements of war. The conversion from peace to war is shown graphically in these official photographs of the Office for Emergency Management.

Says the head of the concern, name withheld by WPB:

"We realized that if we were to stay in business it would be necessary for our plant to convert to arms work for the Arsenal of Democracy."

Science News Letter, March 14, 1942

MEDICINE

Frozen Dried Blood Plasma Helps Bleeding Disease

FROZEN dried blood plasma, which is saving lives of soldiers wounded in the present war, offers new hope to patients with hemophilia, the hereditary disease in which the slightest cut or injury may cause dangerous or even fatal bleeding. This appears from a report by Dr. John B. Johnson, of the University of Rochester School of Medicine (*Journal, American Medical Association*, March 7).

Weekly injections into the veins of about four ounces (125 cubic centimeters) of plasma enabled a patient totally disabled by hemophilia to do light work. For the previous three years his activity had been greatly restricted because of recurrent bleeding.

Because of the limited supply of plasma Dr. Johnson has not attempted to give all his patients injections of it at regular intervals but he considers intensive treatment of incipient hemorrhages with plasma the most practical method of attempting to rehabilitate patients with hemophilia.

Transfusions of fresh whole blood have heretofore been considered the most effective treatment of hemophilia. Plasma, Dr. Johnson says, has the same ability as whole blood to shorten the clotting time of the blood, which in hemophilia is so prolonged that the patient is in danger of bleeding to death from small injuries. In addition, plasma has the following advantages: It is more readily available than whole blood, since it can be stored after suitable processing without losing its ability to reduce clotting time. It does not need to be typed or matched with the patient's blood.

"One of the most satisfying results of of the type of management under discussion has been the elimination of the fear of tooth extractions in patients with hemophilia," Dr. Johnson states. "The removal of two or more teeth on three occasions in two patients was managed by the use of plasma alone."

Science News Letter, March 14, 1942

MEDICINE

Virus Theory of Human Cancer Gains Support From Research

Discovery of Why Virus Is Not Found in Some Cancers In Rabbits May Explain Failure To Find It in Humans

THE theory that cancer is caused by a virus, or germ in popular language, gains support from research on a type of virus-caused cancers in rabbits reported by Duke University scientists. (*Science*, Feb. 27)

Failure to find a virus in human cancers has argued against a virus cause of human cancer. But in rabbits cancers develop from warty growths that are known to be caused by a virus yet it is often impossible to find the virus in the rabbit cancer. The reason for this, which perhaps applies to human cancers also, has just been discovered by the Duke scientists, Dr. Frederick Bernheim, Dr. Mary L. C. Bernheim, Dr. A. R. Taylor, Dr. Dorothy Beard, Dr. D. G. Sharp and Dr. J. W. Beard.

The virus which causes the warts that turn into cancer in rabbits is probably a protein chemical which is "degraded"

by enzyme action in the cancer cells. The virus chemical is probably degraded or destroyed, as fast as it is formed in the warty cancers of domestic rabbits, which would explain why the virus cannot be found in these cancers. In cottontail rabbits, in which the virus usually can be found in the cancer tissue, the virus chemical is probably formed more rapidly than it is destroyed.

The enzyme or other factor which destroys the virus chemical probably is acquired by the body cells in the course of their change into cancer cells.

"It is an obvious possibility," the Duke scientists point out, that such a mechanism may prevent a virus cause being discovered in other cancers, if it does exist. Whether it exists and is destroyed before it can be detected, or whether it does not exist cannot be stated as yet.

Science News Letter, March 14, 1942

PUBLIC HEALTH

War Rise in Tuberculosis Predicted for Hungry Nations

Death Rates From Tuberculosis Already Increasing In British Isles Because of Poorer Nutrition

ARISE in tuberculosis in countries where war has caused a food shortage was predicted by Dr. Esmond R. Long, director, The Henry Phipps Institute, Philadelphia, in an address to the New York Tuberculosis and Health Association.

Dr. Long pointed out that already a rise in tuberculosis death rates has been recorded in the British Isles, attributed by public health authorities to poorer nutrition. He said proper nutrition is an important constitutional factor in resistance to this disease.

"During the first world war there was a serious rise in tuberculosis in the warring countries. Careful analyses in later

years credited a major share of this to malnutrition, particularly to deficiency in protein consumption. Later studies have indicated the importance of vitamin A and vitamin C. These food substances are looked upon as protective. They may spell the difference between ability and inability to resist minor tuberculosis infections."

Science News Letter, March 14, 1942

Keep T.B. Patients in Bed

EVERY possible educational and persuasive means should be applied to keep tuberculosis patients from leaving sanatoria before their disease is arrested,

Dr. Emil Frankel of New Jersey told the meeting.

When these have failed, he said, force may be necessary to prevent interruption of treatment and the possible spreading of infection.

Dr. Frankel, who is director of the division of statistics and research of the New Jersey Department of Institutions and Agencies, reported that the problem is serious in his state. Of 1,000 tuberculosis patients leaving the 14 state and county sanatoria during the six-month period ending December 1, 1941, more than 34% did so against the advice of the physician.

A few of the reasons for early depart-

ture, Dr. Frankel said, are worry over problems at home, "old-fashioned homesickness," dissatisfaction with care, and economic factors.

To combat these influences, he said, each patient must be considered as an individual case and his problem solved on a case-work principle together with the physician, the clinic and sanatorium; the procedure to be carried through by a competent social worker.

When all other methods fail, he concluded, the law must be used as an extreme measure to require the restraint of tuberculous persons with careless hygiene habits.

Science News Letter, March 14, 1942

PUBLIC HEALTH

New Plan of Examining Draftees Called Costly and Dangerous

American Psychiatric Association Warns of Danger If War Machines Are Manned By Men Likely To Go Insane

WARNING of the dangers of having combat airplanes or tanks manned by men likely to break mentally under the strain of battle and become suddenly insane, the American Psychiatric Association, through its official organ the *American Journal of Psychiatry*, condemned the new plan for examining drafted men as "undesirable, unsound and costly."

By this new plan, local Selective Serv-

ice Board physicians will serve only as a "coarse screen" for weeding out the obviously unfit. Beyond this, the whole load of eliminating those physically or mentally unable to stand up under the responsibilities and strains of military life and combat is to be borne by Army induction boards.

Under the previous plan, not only did local Selective Service Board physicians examine the selectees, but local physicians

who are specialists in such fields of medicine as heart disease, lungs, eyes or mental ills donated their services on advisory boards and examined all men suspected by local board physicians of having defects. The careful, conscientious examinations by these volunteer physicians, it was felt, not only served to keep on important civilian war jobs men who would have failed in the Army, but also prevented frauds by men who might have tried to feign defects they did not have.

Physicians who thus donated their services examined the men in the evening or other "spare time" and did not leave their regular jobs or neglect their practice.

With the Army taking over the whole job, a substantial increase in the number of Army physicians serving on induction boards will be necessary, the American Psychiatric Association points out.

"It is highly doubtful," the editorial states, "whether a sufficient supply of trained psychiatrists exists to provide suitable examiners for the increased number of induction boards."

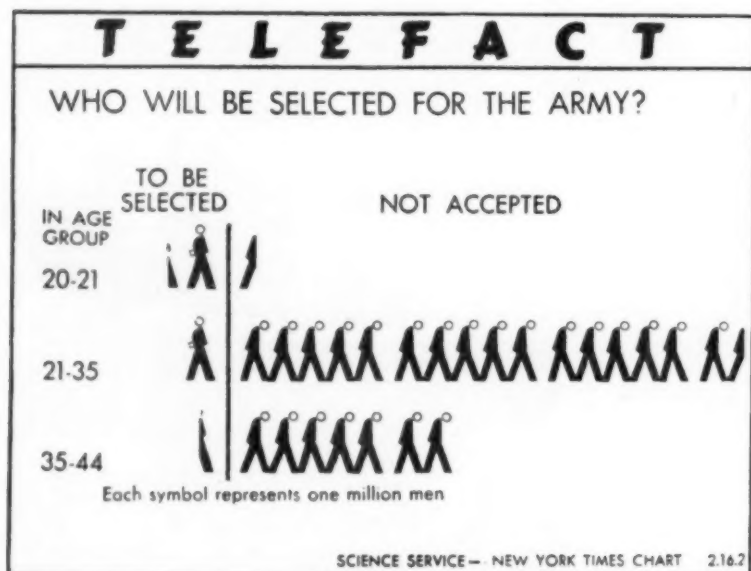
Moreover, the Army induction boards will not have the advantage local physicians have of availability to local records such as police records or commitments to mental hospitals to aid in determining the mental fitness of the men. They won't know whether a man is known at home as a drunk or a trouble maker, is "queer" or "gets spells." They wouldn't have time to study such records even if they did have them.

"The cost of neuropsychiatric (nervous and mental disease) casualties is staggering," declared the psychiatrists. "The proposed change threatens to increase the proportion of unfit selectees, with untoward financial consequences after the war and for a generation thereafter."

"Furthermore, with the increase in mechanization of the armed forces the actual danger and risk caused by the presence of men who may suddenly become acutely psychotic is far greater than ever before; not only loss of efficiency, but actual danger are sequels of inadequate selection, a fact which is recognized in those countries in which psychiatric selection has not yet been developed."

"The President," they conclude, "has already shown an interest in the value of psychiatry as a means of increasing military efficiency and reducing military casualties. The *Journal* hopes that he will act to prevent this costly backward step."

Science News Letter, March 14, 1942



VOLCANOLOGY

Steam Blows up Volcanoes As It Does Defective Boilers

**Not Caused By Magma Gases, As Formerly Believed,
But By Volcanic Furnace Lowered Below Artesian Level**

PURE STEAM plays an important part in the explosive destructiveness of volcanoes, Dr. Thomas Jaggar, research associate at the University of Hawaii, and volcanologist at Kilauea Volcano for 30 years, told the Hawaiian Academy of Science.

Dr. Jaggar has shown that the blasts consist largely of pure odorless steam which does not come from the magma gases, as geologists formerly believed, but is "formed by a volcanic furnace being lowered below the artesian level."

This process was essentially the same in the volcanic eruptions of Mount Pelée, Soufrière, Santa Maria, Vesuvius, Bogoslof, Katmai, and Lassen. The mountains split in a rift, sometimes several miles long, and lava came out below sea-level, or flowed into deep cracks intrusively. Following almost immediately after the split came a terrific explosion. The magma lowering had produced an empty space below the ground-water level which became a steam boiler.

Dr. Jaggar has collected a series of more than fifty accounts by eyewitnesses at these cataclysms. A colored servant girl on one of the boats in the harbor told him of the eruption of Mt. Pelée which occurred in 1908. According to this girl and other surviving passengers, the mountain split from summit to base and then a black cloud rushed down, traveling the four miles in one and one-half minutes. The blast struck the ships, sinking many. Everything was covered with "hot moist ashes and boiling splattering splashes," and hidden by darkness.

On May 18, 1924, a man approached Kilauea volcano on the island of Hawaii, to take pictures. He had been told by the volcanologist that an explosion was imminent but disregarded the warning and was caught by a tremendous blast which threw out aqueous mud, steam, and fifty-ton boulders. The man was finally rescued, minus a foot left under a boulder, but died from shock and burns although his clothing was unscorched.

"Lava lowering and engulfment have long been known but have been disre-

garded," said Dr. Jaggar. "The evidences of such are easily missed. The rift vents seal themselves afterward with mud and lava, and the terrific steam blasts are phenomena that men flee from, effectively removing all witnesses."

The steam factor is, however, of tremendous importance, Dr. Jaggar says. There are oceans of water under all the volcanic islands. "Engulfment breakage below the ground water level breaks the seal. The magma is the furnace, rupture pulls the trigger, and the water boiler has burst." Steam-blast eruption is a surface incident totally different from lava-gas effervescence.

Science News Letter, March 14, 1942

NUTRITION

Vitamins Added To Beer By New Invention

ENRICHED beer may be expected presently to be adding its appeal for public acceptance to that of enriched bread. A method for restoring the natural yeast vitamins to beer, from which they are lost in modern clarification processes, is covered by patent 2,273,853, issued to Albert M. Fischer of Chicago, and assigned by him to the Rotary

Extractor Corporation of Long Island City.

Beer brewed by old-fashioned methods is rich in vitamins, which are contained mainly in the yeast cells which remain in the beverage, Mr. Fischer explains. To get the very clear fluid demanded by present-day beer trade, these are filtered out, and most of the vitamins go with them.

In Mr. Fischer's process, a portion of the filtered-off yeast is first treated with a mixture of salt and sugar, which "draws" out part of their cell contents. Then the treated yeast is whirled in a centrifugal extractor, which separates the vitamin-containing liquids. These can then be restored to the beer, without damage to its clearness.

Science News Letter, March 7, 1942

BOTANY

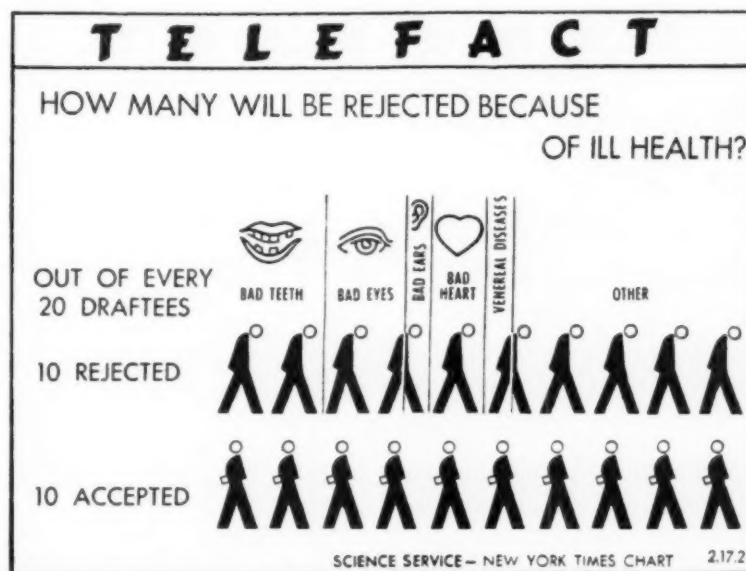
Tobacco Users Warned To Avoid Young Tomatoes

IF YOU smoke, chew or dip snuff, you are not fit company for young tomato plants, warns C. E. Scott, plant pathologist at the California Agricultural Experiment Station.

Not that tomato plants have any morals to contaminate; but a serious disease of tobacco, mosaic, can be spread to the tomato foliage by contact with the hands of tobacco-using workers. After that, insects in the greenhouse can continue its spread.

Mr. Scott recommends that any worker who uses tobacco should wash his hands with strong soap before handling tomato plants.

Science News Letter, March 14, 1942



PUBLIC HEALTH

First Aid in War Emergency

How to Make Apparatus

By JOSEPH H. KRAUS

Science Clubs of America Editor

As cities, industries and schools prepare for emergencies that may arise from the war, there are some pieces of apparatus for use of local groups that may be made by science club members and others who are handy with tools.

For instance, consider first aid groups and classes. Both for actual use in emergencies and for instruction purposes, such things as splints and stretchers are used. In many places there may be lack of such equipment. Groups or individuals may wish to volunteer to supply any lack that exists. Others may wish to equip their own homes and institutions with such apparatus and learn how they should be used.

So great have been the demands for instruction in first aid that chapters of the American Red Cross and other such groups have been confronted with the double problem of training first aid instructors to teach first aid classes, and at the same time of supplying the necessary equipment for the instruction. Some of the needed equipment, such as splints, may be made easily by the average "home mechanic."

Splints may be made of practically any good clear-grained wood. The War Department recommends that splints be made of basswood, yucca or other equal material. Therefore, if you can get this material it is suggested that it be used. All wood should be planed smooth and sanded on all sides and edges. A rough surface might splinter. For training purposes first aid classes can use splints made from even a good grade of plywood, so you can substitute

this if basswood cannot be obtained.

These splints are usually used to immobilize temporarily a fracture. Suggested dimensions are given on the diagram. The 56- and 65-inch splints should be notched at one end only; the notch should be two inches deep at the apex of the V.

The 65-inch splint may be made in two sections so that it can be folded for ease in carrying.

It is recommended that after the splints have been made holes be drilled clear through near the center to accommodate bolts, wing nuts and a leather or other handle. In this way the splints can be transported easily. Such a combination may be taken apart quickly for use either by the instructor or in the field.

Some local first aid groups might like to experiment with a new style of chair carrier, not yet officially approved by the Red Cross. This chair carrier, made of canvas or heavy duck, is the suggestion of Mrs. L. K. Thompson of Memphis, Tenn. She calls it a "Queen's chair."

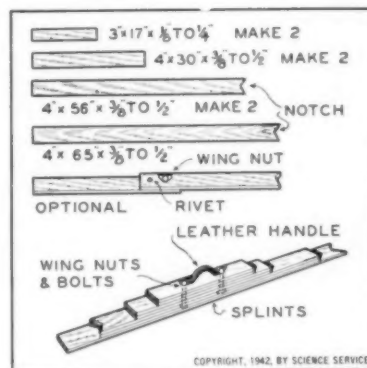
Briefly it is a canvas carrier which may be combined in clusters of three to form a stretcher, as the illustrations show. A single one of these Queen's chairs may be used to carry an injured person. Two people do the carrying. The person in the foreground is not shown in the illustration.

Such a chair has other advantages. For example, it could be employed to transport an invalid up and down stairs. It might be used to carry bags of sand. It might be handled by air raid wardens, auxiliary firemen, rescue squads, auxiliary police, bomb squads, road repair crews, nurses' aid corps, etc. The carrier could be used in camp and



SCIENCE

Serving Science Clubs of America



at the seashore. We have not scoured all the possibilities.

The construction is detailed in the diagram. A 36" width of No. 6 or No. 8 duck (or canvas), is split lengthwise. (This makes two carriers.) The edges are turned in and hemmed to make a piece 17" wide, 42" long. Heavy canvas web, one and a half inches wide, is used to form the continuous loop at the extreme ends. This loop is sewn into a hem five inches wide at both ends. (The other two inches of material are for the turned in edges.) The details are given in the illustration.

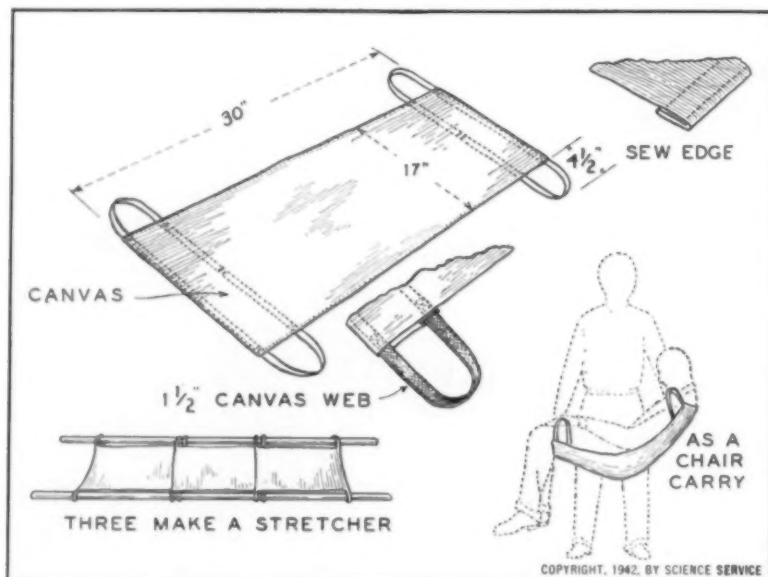
Many sewing machines found in the average homes will not handle No. 6 or No. 8 duck. It is too heavy. For this reason hand-sewing may be necessary or the services of a shoemaker might be enlisted. If the material is to be hand-sewed a sailmaker's needle or a darning needle can be employed. In the detail drawing note particularly the reinforcement sewing where the hand-holds extend from the canvas. All seams should be double stitched.

This completes the Queen's chair. Three of these units, interlocked on two poles, may be used as an improvised stretcher. The way in which this is done also is shown in the diagram.

Before you start making Queen's chairs for local use, make sure that the local units can use them.

Unless you can get priority ratings through local chapters or civilian defense organizations, you may not be able to use the canvas or duck called for in the original specifications. Possible substitutes would be very heavy cotton blankets or old rugs or carpet cloth. Consult the local group for which you are making the Queen's chairs or stretchers to be sure you pick a suitably strong and washable substitute material.

Your local Red Cross, civilian defense units, industrial first aid organizations, or other groups are likely to be able to use the material suggested. But it is suggested that you check with your local groups before turning out these items. Advise whoever



OBSERVER



Sponsored by Science Service

is in charge that you would like to make such things for them. If one group has enough of this sort of equipment, another may be able to use it.

Science News Letter, March 14, 1942

NEWS OF CLUBS

LONG BEACH, N. Y.—At the Long Beach High School a Science for Citizenship Club has been formed. Membership is open to all junior and senior high school students. The members of this club hold that faulty thinking is responsible for a preponderance of the world's ills and that science presents the only basis upon which all these problems will be solved. Of course it is a truism that the language of science is the same the world over. It represents a common ground upon which all can meet. At present the experimental work of the club is devoted largely to conservation projects. Work is now being done to determine if Long Beach sands will support vegetable growth. This club is sponsored by Mortimer Schultz, general science teacher.

BALTIMORE, Md.—Glass blowing and experimental work with liquid air are two of a number of projects which at present are interesting members of the Edgecomb Science Club, Edgecomb Academy. Studying birds, taking care of animals, collecting insects, and making a file of finger prints are topics which also get their share of attention. Learning how to handle glass and manipulating this in the laboratory will prove of great value to young scientists when later they work in scientific laboratories. Today the necessity of dealing in small fractions of chemical substances becomes more and more apparent. Often this necessitates that special laboratory glassware be prepared for carrying on the research. The Edgecomb Science Club is sponsored by Mrs. J. R. A. Davis, instructor in biology.

RICHMOND, Ind.—The study of Richmond fossils is being undertaken by members of the Hibberd Science Club, Hibberd School. The members have many other interests in addition. These spread into the fields of radio, zoology, chemistry, biology and photography. Reports on the various topics are given regularly by the club members. The group is sponsored by Velma McCulloch, science teacher.

CHICAGO, Ill.—Members of the De La Salle Biology Club at De La Salle High School are studying land erosion. Models are being built to illustrate the factors which are responsible and which can be used to control the washing away of the soil. Field trips and laboratory projects also are encouraged. The club is sponsored by Brother George, F.S.C.

LANSDALE, PA.—A telescope is being made by members of the Pioneer Science Club of Lansdale Junior High School. With it the members hope to carry on studies in astronomy. Some of the members are breeding tropical fish. All of them carry on experiments beyond the regular classroom assignments. The sponsor of this group is Russell F. Fisher, science teacher, who reports that the *SCIENCE NEWS LETTER* is used extensively for developing ideas.

FREEMPORT, Ill.—More and more the science clubs formed in schools, colleges, academies, settlement houses and many scout groups are extending privileges of membership to "outsiders." Such favorable regulations make for greater activity and vigor because guest members frequently are able to benefit the club by furnishing specimens, materials and advice.

Among the clubs formed in schools which are not limited entirely to student membership is the Freeport Nature Club at Freeport High School. This group conducts nature hikes during which birds, flowers and trees are studied. Then, too, the members lay out a nature trail and see to it that this is taken care of constantly. Later this year the organization will hold an Open House Exhibits at which projects will be displayed. This organization is sponsored by Thomas G. Spring, teacher of biology at the high school.

MT. HERMON, Mass.—The Faraday Scientific Club at Mt. Hermon School seeks to keep in touch with current achievements in the scientific field and then disseminates this information in the school for the benefit of all science classes. The members of the club, furthermore, are encouraged to make and present various scientific projects. The group is sponsored by George R. Laurence, instructor of chemistry and biology.

POCATELLO, Idaho—The Science Club of the Senior High School is supervising a visual education program in addition to conducting experiments and preparing assembly programs. Mixed with these more serious club activities are parties held by and for club members. The club is sponsored by R. A. Brown, Head of the Science Department.

Many science clubs hold socials to which the members look forward. The more serious business of administering to scientific interests when followed by a social rounds out a program of several hours duration. This spirit of communion is something to which all Science Clubs of America members wholeheartedly subscribe.

OSHKOSH, Neb.—Interests of members of the Science Club at Garden County High School are varied. Some of the members are building radio sets. Others are conducting experiments along "Chemical Gardening" lines. A third group is engaged in setting up and operating a weather station. The club, as a whole, conducts chemical experiments and aids in setting up new exhibits for the high school museum. The group is sponsored by Andrew A. Weresh, science instructor.

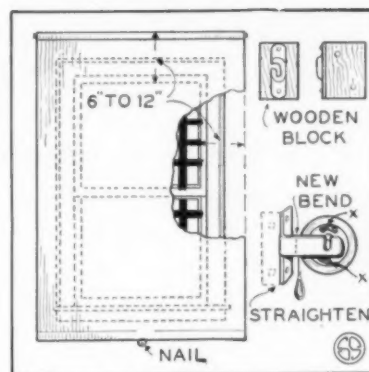
SIOUX CITY, Ia.—The Central Institute of Technology is a club formed at Central High School. Each year this club holds a Science Fair. Weekly meetings with student demonstrations and guest speakers are included in the program of this club. The group is sponsored by Miss Curry, science teacher, and has additional affiliations with the State Junior Academy of Science.

SOMERVILLE, N. J.—In an effort to become acquainted with present developments in the field of chemistry members of the Positrons Chemistry Club at Somerville High School start by preparing synthetic materials. Experiments with those materials then familiarize the members with the properties and uses. To further understand the conditions under which such chemicals are manufactured the members visit industrial plants which manufacture the same materials commercially. Motion pictures of the manufacturing processes are also exhibited and lectures are delivered by scientists. Along with this instructive information experiments are conducted to acquaint members more fully with the phenomena of cold light, X-rays, fluorescence, fluorescent lighting, etc. Liquid air, used in some of the manufacturing processes, receives its share of attention. The club is sponsored by Lawrence L. Moore, chemistry teacher.

LEBANON, Conn.—In what direction do your scientific interests flow naturally? That question is difficult to answer particularly by a person who either is a newcomer to science or who has not definitely decided upon his future work or hobby. It may be that the system evolved by the Lyman Science Forum, established at Lyman Memorial High School, offers a solution to the perplexity. The club is divided into groups on biology, chemistry, electricity and First Aid. Each of these groups meets separately to work out experiments or plan activities. At alternate meetings one of the groups gives a report and demonstrates the work it is doing. At any period any member may shift allegiance from one group to another, or an entirely new and different topic may be approached by a newly formed group. Each group must "produce the goods" or it will have no members. The sponsor is E. Richard Sollanek, science teacher.

BRASHER FALLS, N. Y.—Men of science from distant towns frequently lecture to members of the Luminar Science Club established at Brasher and Stockholm High School. This club has had a very successful "Penny Bazaar." The funds provided by the "Bazaar" were used to purchase materials and equipment. Members also hold a Science Fair at which projects and exhibits are displayed. The group is sponsored by Winom Mahoney, science instructor.

Clubs are invited to become affiliated with SCA for a nominal \$2 for 20 members or less. You can become an associate of SCA for 25 cents. Address: Science Clubs of America, 1719 N St., N.W., Washington, D. C.



HANDICRAFT

Paper Blackout Shades

Defense agencies have requested the American public not to purchase quantities of dark cloth for making window blackouts. In fact, it has been recommended that any heavy material through which light cannot filter readily, even if not black, is perfectly satisfactory.

Many five-and-ten-cent stores are selling dark paper shades. These, if properly fitted to the window, will prevent light from filtering out. The shade should be mounted close to the wall. This may necessitate rebending the brackets, thus making them shorter; or mount new brackets on small wooden blocks.

To keep the shade tight, pry out the catches from the spring end (marked "X" in the diagram). This places the shade under constant spring tension. In its pulled-down position, the shade may be held in place by a small bent nail.

Science News Letter, March 14, 1942

War Service Activities For Science Clubs

Detailed suggestions as to how science clubs may make their contribution to our war effort by performing useful functions in their local communities are being compiled and will shortly be issued in a special war service bulletin. High schools now without science clubs or with clubs not now affiliated with SCA may begin cooperation in the national movement by organizing for this war work.

Science News Letter, March 14, 1942



SCIENCE CLUBS OF AMERICA

SCA, under Science Service sponsorship, continues the pioneering activities of the American Institute of City of New York over the past 15 years and the Student Science Clubs of America which was merged with that movement. The American Institute continues to foster the regional activities of the junior clubs of the New York City area as a science center.

To effect close cooperation between the American Institute and Science Service, an advisory committee on SCA is being formed.

The principal SCA staff consists of Joseph H. Kraus, SCA editor, and Margaret E. Patterson, SCA membership secretary, based at New York in offices at 310 Fifth Avenue, also occupied by the American Institute.

CHEMISTRY

Wood Substitutes for Substitutes

New Chemical Treatments, Hardening, and Waterproofing Open New Ways To Save Metals

See Front Cover

WOOD is fast becoming a "substitute for substitutes" — replacing metal alloys and composition materials in our war program.

Big timbers are being substituted for steel girders in many newly constructed war plants, armories, hangars, piers and docks. The shortage of steel has compelled engineers to return to the big beam construction of former years. Perfection of salt pressure impregnation methods, using zinc chloride or other salts, makes it possible to protect these timbers from pests and decay.

As a result of new discoveries at the Forest Products Laboratory at Madison, Wis., many new uses are being found for wood and its products.

In common with all America and the forest products industry itself, emphasis at the Laboratory is on defeating the Axis powers, and wood scientists are busy devising means of adapting wood to the needs of many industries hard hit by priorities. Among the research projects primarily directed to defense needs are those involving: lamination of wood for

airplane propellers; improved decking for naval craft; substitutes for cork, made scarce by the war; better construction for the pontoons necessary in emergency bridges thrown up by Army engineers to facilitate the progress of mechanized troops; containers for shipping explosives; and a new type of resin for shrapnel filling.

The concern of the Forest Products Laboratory with the war effort, however, is but a part of the Laboratory's long-time program to improve our present uses for wood and to adapt it to still more civilian and peacetime needs. For the directors of this research institution are confident that the new applications for wood developed in war will prove of equal value in a peacetime economy, particularly since wood is such an abundant national resource.

How abundant a crop it is is revealed in figures recently released on the forest reserve. Systematic and extensive tree planting plus natural regeneration is resulting in an annual growth of 32 billion board feet of timber in the United States, or enough to build 2,665,000 new homes

each year, more than five times the number constructed in 1941. Further indication of the timber owners' future planning is the fact that more than 70,000,000 acres of commercial forest land is being managed on a sustained-yield production basis, so that its huge timber crop can be harvested and replenished indefinitely. In fact, the annual increment from the 461,000,000 acres of commercial forest land in the nation is now almost equal to the amount of timber we consume.

The Laboratory, founded in 1911, and the only institution in the world to be devoted exclusively to the study of wood and its derivatives, includes more than four acres of floor space and is staffed with 160 scientists.

An example of a wartime product which will be of great value in peace is a sensational new plasticizing process which the Laboratory has developed. Under treatment with urea, an inexpensive chemical produced in quantity by du Pont, it is possible to twist wood like rope, bend it like lead, mold it like dough, and to give it the hardness of some types of steel.

Process Is Simple

The process itself is a simple one. After soaking the wood in urea it is dried and heated to the boiling point of water. At this point the wood can be bent, twisted, compressed and molded, direct from its original form. In addition to the obvious wide applications such a product will have, the new process has the further advantage of making use of second-growth and other low-grade timber. This is still in the experimental stage, however; it is not commercially available, nor will it be for some time.

The whole new field of plastics, which produces so many of our most exciting commercial products, has benefited enormously from the work done at the Forest Products Laboratory. Wood and wood products are our largest single source for plastics. The mysterious substance lignin, whose actual chemical composition has baffled scientists for more than a hundred years, has at last proved to be valuable material for conversion into plastics.

Lignin is also used as an expander for lead in automobile storage batteries, thus increasing their life several fold. It has also been put to limited uses in tan-



STRONG

Girders of wood, like the above, instead of steel are being used for many long-span roof structures both in war production plants and in peacetime buildings. New methods of chemical impregnation give the wood almost the strength of steel.

New Gateway to the "Radio Age"!

CONFIDENT that the future of radio will be greater even than its past, the Radio Corporation of America has laid the cornerstone for the world's foremost center of radio research and pioneering—RCA Laboratories at Princeton, N. J.

The main section of the Laboratories will open in 1942, dedicated to the service of mankind through increased usefulness of radio and electronics to the nation, to the public and to industry.

Radio has marched hand in hand with progress in electronics. The magic which created electronics—infinitesimal particles of electricity—lifted radio out of its mechanical era...took wireless out of the spark gap and sealed it inside the vacuum tube...took television off the me-

chanical scanning disc and put it in the Iconoscope.

In this hour of history RCA Laboratories fittingly symbolize our faith in the future—that science will blaze new trails in the unexplored wilderness of the electronic sciences through radio research.

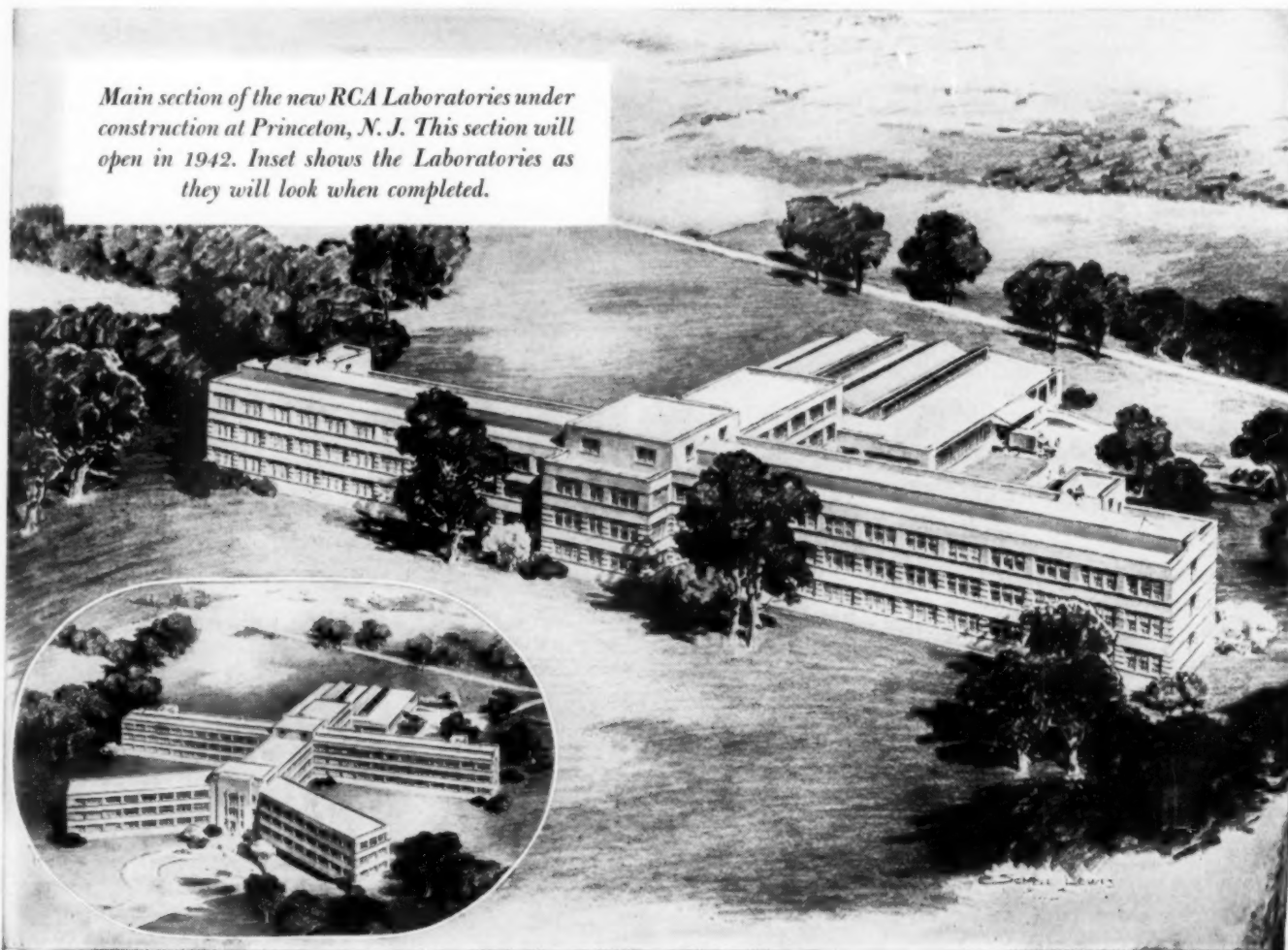


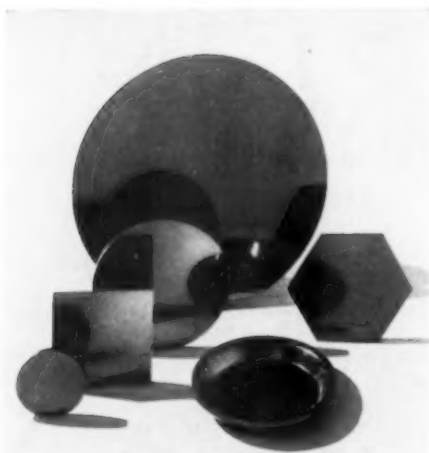
RCA LABORATORIES

A Service of the Radio Corporation of America, Radio City, N. Y.

Other RCA Services: RCA Manufacturing Company, Inc.
Radiomarine Corporation of America R.C.A. Communications, Inc.
National Broadcasting Company, Inc. RCA Institutes, Inc.
Blue Network Company, Inc.

Main section of the new RCA Laboratories under construction at Princeton, N. J. This section will open in 1942. Inset shows the Laboratories as they will look when completed.





FROM SAWDUST

Lignin, waste product of paper and pulp mills, acts as the formative and binding agent for this plastic from sawdust.

neries. Experiments are now in progress which would make lignin available as a base for fertilizer.

Lignin is the stuff that binds the cellulose together in wood. It is wood's second most abundant constituent. Chemically, it is known to be related to cellulose and, like the latter, is made up of carbon, hydrogen and oxygen. But the size of its molecule and the arrangement of the atoms in it remain unknown.

This substance has to be eliminated in pulp manufacture, but does great harm when discharged into streams as a pulping liquor. Until now it has been almost totally a waste, so that processes which tend to adapt it for use are earnestly sought.

The Laboratory has also devised more efficient and economical methods of chipping trees to obtain "naval stores"—gum resin and turpentine; the drying of timber in salt solutions which eliminate the cracking and warping so usual in the old seasoning process and which saves the industry \$10,000,000 annually; fire-

proofing in which treated wood specimens are tested in specially designed combustion apparatus; the chemical impregnation of wood to prevent decay.

All these and many more experiments and projects are under way in Madison's House of Magic in an effort to make

available to America its greatest crop—wood—a crop which is growing as fast as it is harvested and which still has thousands of possibilities for the enrichment of our lives as well as for the protection of our way of life.

Science News Letter, March 14, 1942

ETHNOLOGY

Japanese In Hawaii Loyal Declares American Author

Not Only American-Born Youth, But Their Alien-Born Parents, Have Stuck With the Colors and Served

JAPANESE in Hawaii have proved loyal to the United States since the first bombs fell on Pearl Harbor, declares Prof. Blake Clark of the University of Hawaii, whose eye-witness book, *Remember Pearl Harbor!* has just been published. (*Reviewed, SNL, this issue.*) Not only the Nisei, American-born of Japanese parentage, but their alien-born elders who cannot become citizens, have stuck with the colors of their adopted land, he states, adding:

"Of all the 425,000 people in Hawaii, only 273—and by no means all of them Japanese—have been detained as suspicious characters."

First evidence came while the bombardment was just starting. Yamato and his wife Hatsu, alien-born Japanese servants in the house where Prof. Clark lives, were first incredulous, then stricken with horror and grief, at the treachery of their fellow-countrymen. The woman actually became physically ill. Subsequently Yamato did all the digging for the air-raid shelter in the back yard.

During the raid, two Japanese workmen helped one American soldier to set up a machine gun, and then aided so eagerly in feeding ammunition into it that both suffered burns from its heated barrel.

The Japanese naval officer who escaped from one of the disabled two-man submarines found a Nisei in American uniform waiting to take him prisoner when he swam ashore. The brown-skinned soldier forgot military etiquette to the extent of giving his captive a couple of cuffs on the jaw because, he said, "you're one of those (deleted) that's responsible for me being out here on guard duty at \$21 a month!"

Japanese members of the University of Hawaii faculty immediately put themselves at the service of the F.B.I. Japanese

surgeons treated the wounds of American soldiers and sailors, while Japanese bombs were still bursting about them.

Outweighing by far these individual deeds of courage and sacrifice, however, was the response of the Japanese community to the medical authorities' appeal for donors to the blood bank. People of all races and classes came crowding in together, but the Japanese who offered their blood outnumbered all other racial groups combined. The older people, alien-born, came dressed in the ceremonial black which their etiquette requires for formal occasions.

Many an American fighting man, wounded during the raid, is now able to man his gun or fly his plane against the aggressors today because he very literally has Japanese blood in his veins.

Science News Letter, March 14, 1942

NUTRITION—PSYCHOLOGY

American Soldiers Receive Daily Rations of Candy

AMERICAN fighting men at Bataan as well as American troops in action everywhere rate candy and tobacco along with their regular rations, as an aid to morale, according to Army Quartermaster Corps officers.

When the soldier is in action and can't get to a post-exchange for smokes and sweets, he gets a daily ration of candy, cigarettes, pipe tobacco or chewing tobacco as he prefers. The candy ration is one ounce; pipe tobacco one ounce, chewing tobacco one ounce; cigarettes, 20. If he rolls his own, he gets 100 cigaret papers and two ounces of smoking tobacco. A box of matches is supplied every two days. Reasonable choice of brands is allowed on all tobacco.

Science News Letter, March 14, 1942

Languages Made *easy* By Linguaphone

SPEAK SPANISH, PORTUGUESE, FRENCH—or any of 29 languages—in an amazingly short time by the simplified, direct Linguaphone conversational method. In your own home listen to the voices of native teachers who lead you by easy steps to speak, read and write the language of your choice. Endorsed by the foremost language teachers. Used by a million home-study students. Send for FREE Book

LINGUAPHONE INSTITUTE
11 R.C.A. Building New York City

"TO PROVIDE FOR THE COMMON DEFENSE, TO PROMOTE THE GENERAL WELFARE"



Bad medicine for big bombers

ONE WAY to spoil a bomber's aim is to hang a curtain of steel over your ship and dare him to come down through it. To get that curtain of steel up there requires quick-firing, flexible guns.

To the plant of the Westinghouse Electric Elevator Company the Navy, a few months ago, brought its plans for such a gun. And to Westinghouse was given the important job of building the mounts that would control the aiming of these batteries of quick-firing guns.

And the Navy said, "Well done!"

Today, over the Westinghouse plant, there floats the Navy's "E" pennant—for excellence—eloquent testimony to the manner in which this Westinghouse plant performed the job. How was this plant able to get into growing production of these mounts so quickly? The answer lies in a Westinghouse characteristic called "know how"—the ability to

get things done in the best possible way.

This Westinghouse "know how" makes itself felt wherever Westinghouse craftsmen build things. Whether for the common defense or the general welfare, this "know how" is doing a job. The same skill and ingenuity that made so many splendid things for peacetime living are now being applied to many important war weapons.

"Know how" will work for you again

We look forward to the day when we can give your home, your farm, or your factory the full benefit of Westinghouse "know how" again. To speed that day means just one thing to us: to produce, in ever increasing quantities, the tools with which to get the victory job done.

Westinghouse

For the Common Defense

Sterilamps
Bomb Fuses
Tank Equipment

Military Radio Equipment
Plastic Plane Parts
Seadrome Lighting Equipment

Navy Ship Turbines and Gears
Blackout Plant Lighting
Equipment

For the General Welfare

Air Conditioning
Electric Refrigerators

Switchboards
Lamps

Steam Turbines
Elevators

These lists mention only some of the many thousands of Westinghouse products.

WESTINGHOUSE ELECTRIC & MANUFACTURING CO., PITTSBURGH, PENNSYLVANIA
Copr. 1942, Westinghouse Electric & Manufacturing Co.

New Machines And Gadgets

Novel Things for Better Living

The pencil ferrule, the bit of metal that holds the eraser on the end of your pencil, may be a small thing, but they have contained brass or copper which are of immense importance in our war effort. These ferrules are now being made of plastics, and they are smooth, ridgeless and tasteless—something that will be appreciated by the habitual pencil-chewer.

Sanitary and silent is a household garbage can recently patented. It has an outer and an inner container, the inner one having a rounded bottom so that it can be easily cleaned and sterilized. The lid hermetically seals both containers. It is opened in the usual way with a foot pedal, but a stiff spring holds it firmly in the shut position. The under side of the lid is cushioned with a thick layer of a spongy material which in former days might have been rubber.

Simple silver plating can be accomplished by using a photographic acid fixing bath that has become too exhausted for further photographic work. Such a bath contains silver that has been dissolved from the negatives or prints that have been fixed in it, and this will be deposited on brass or iron objects immersed in it for a few minutes.

Eye protectors of an entirely new kind, valuable alike to armed forces in the field and to industrial workmen in the factory, are a new invention. They replace the thick glass or plastic of conventional goggles with domed pieces of metal set in soft-rubber frames that fit comfortably around the eye-sockets. Each eye-covering has two slits cut into it at right angles, one permitting side-to-side vision, the other a vertical sweep of the eye. To adjust the vertical slits to the proper inter-pupillary distance there is a threaded sector in the connecting rod above the nose.

The metal is heavy enough to give good protection against shell or grenade



splinters in combat, or flying sparks or particles of metal in industry. Since no glass is used, there is no fogging in cold weather; also, everything appears in normal color relations, so that lights and other signals are easily read. If used where there is fine flying dust or sand, cups of molded transparent plastic can be fitted inside the protectors.

Another advantage claimed by Inventor A. L. Freed is high usefulness where there is much glare, as on sand, snow or water. It has also been suggested that they might prove valuable in night driving of automobiles.

A new waterproof carton is being tested as a container for Army field rations. It can be submerged in water or set out in the sun without moisture or air getting in or out. The carton was originally developed for the frozen foods industry. Before being filled it is dipped in a bath of molten plastic composed principally of unmilled crepe rubber and a blend of waxes. The plastic thus coats all surfaces. After the plastic has set, the carton is filled, the top flaps are folded down, and by application of heat to these parts, the plastic is softened and a perfect seal is produced. All operations are performed in fast time by automatic machinery.

● RADIO

Saturday, March 21, 1:30 p.m., EWT

On "Adventures in Science," with Watson Davis, director of Science Service, over Columbia Broadcasting System.

Dr. Mark Graubard, Office of Defense Health and Welfare Service, will discuss the food habits of Americans and other peoples in relation to the national nutrition program.

Tuesday, March 17, 7:30 p.m., EWT

Science Clubs of America programs over WRUL, Boston, on 6.04 and 11.73 megacycles.

R. Newton Mayall of the American Association of Scientific Workers will speak on "Unhonored and Unsung."

One in a series of regular periods over this short wave station to serve science clubs, particularly in high schools, throughout the Americas. Have your science group listen in at this time.

Blackout candles are now available for emergency lighting. Each candle has a pedestal-like base on which it can stand without the use of a candlestick.

If you want more information on the new things described here, send a three-cent stamp to SCIENCE NEWS LETTER, 1719 N St., N. W., Washington, D. C., and ask for Gadget Bulletin 96.

Science News Letter, March 14, 1942

MALACOLOGY

Big Collection of Shells Acquired By University

SHELLS by the thousand have been placed in the University of Cincinnati museum recently. But that does not convert the museum into an arsenal. They are perfectly harmless seashells.

They constitute a large collection, the gift of Mrs. Mary B. Cist of Mountain Lakes, N. J., and Sanibel Island, Florida.

Many of the specimens come from the parts of the South Seas now temporarily closed to collectors by the war. Biggest items in the collection are 200-pound Tridacnas, popularly known as bear-trap clams—shellfish so large and powerful that if an incautious swimmer gets his foot caught in the great, wavy-edged shells he is held helpless until he drowns.

At the other end of the size scale are the exquisite cowries, long used as money in some of the islands. Price of a bride in the Solomon Islands is stated to be 20,000 cowries—prewar exchange rate.

Science News Letter, March 14, 1942

SCIENCE NEWS LETTER SUBSCRIPTION COUPON

To Science News Letter, 1719 N St., N. W., Washington, D. C.

☐ Start ☐ Renew my subscription to SCIENCE NEWS LETTER for ☐ 1 year, \$5 ☐ 2 years, \$7

Name _____

Street Address _____

City and State _____

(No extra postage to anywhere in the world)

Books

SCIENCE NEWS LETTER will obtain for you any American book or magazine in print. Send check or money order to cover regular retail price (\$5 if price is unknown, change to be permitted) and we will pay postage in the United States. When publications are free send 10c for handling.

Address Book Department
SCIENCE NEWS LETTER

1719 N St., N. W.

Washington, D. C.

ZOOLOGY

NATURE RAMBLINGS

by Frank Thone



Cherished Nuisances

MEDIEVAL England, like the modern world practically everywhere, looked upon foxes as plain, unmitigated nuisances. They stole the farmer's poultry, and they were very hard to trap for their fur. The balance of favor was decidedly against them.

Horseriding and hunting gentlemen of that time (and all gentlemen then were horsemen and hunters) did not care much about riding after foxes. They had bigger and better game to hunt—big, antlered stags, that could furnish finer trophies, beautiful leather, and large quantities of good meat. The attitude of the huntsman, even as late as the beginning of the sixteenth century, is exemplified by the scornful allusion of Roderick Dhu, in Scott's "Lady of the Lake":

"Tho space and law the stag we lend
Ere hound we slip, or bow we bend,
Who ever cared how, where or when
The prowling fox was trapped or slain?"

But presently deer had pretty well vanished from all parts of Britain where hunting on horseback was practicable. Sport-loving gentry still had their horses, and they were unwilling to give up the fun of chasing something, behind a pack of bell-tongued hounds. What to do?

There remained the fox, which had survived the cutting down of the forests and the spread of agriculture and grazing—had, indeed, even thriven upon the change, as foxes have done in this country. Why not ride after foxes?

Fox-hunting seems to have had some vogue in southern England at an earlier date, even before the last of the stags had been brought to bay. The sport is mentioned by Chaucer, that faithful por-trayer of polite and common life as it

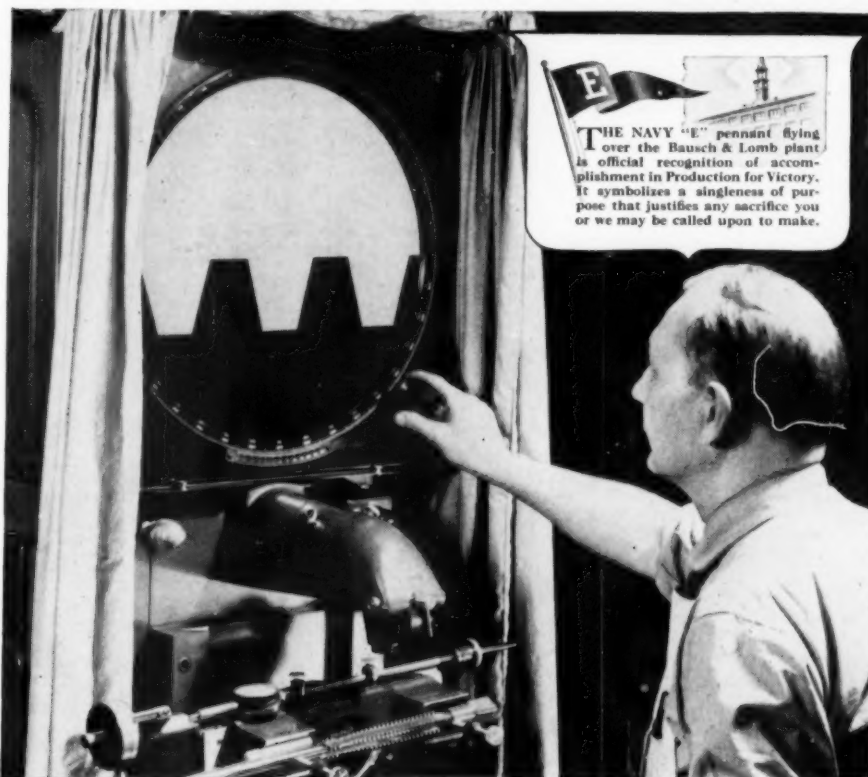
was lived in and around London in the fourteenth century. Whether the gentle-folk were altruistically aiding their farmer tenants to get rid of a nuisance, or whether they had already learned to value fox-hunting for its own sake, is a little difficult to say.

At any rate, as the deer disappeared and the fox was left as the best quarry, Reynard began to be prized—and protected. Only farmers, poachers and other vulgar commoners would trap a fox, or kill it in any but the orthodox and cere-

monial way. To say that a man would shoot a fox was to brand him as no gentleman. The fox, once a plain and unfriended nuisance, had become the gentry's pet—because it was so much fun to kill him in the approved manner.

Science News Letter, March 14, 1942

The United States crude birthrate increased sharply from 17.9 per 1,000 population in 1940 to 19.0 in 1941—this provisional rate is the highest since 1928, the Census Bureau states.



THE NAVY "E" pennant flying over the Bausch & Lomb plant is official recognition of accomplishment in Production for Victory. It symbolizes a singleness of purpose that justifies any sacrifice you or we may be called upon to make.

The Shadow That Speeds the Assembly Line

FROM the production lines of America's vast industries, flows part after part so identical in size that the last can be interchanged with the first and work equally well in the assembled product.

Interchangeability of parts, the secret of mass production, is attainable only through rigid control of accuracy. This high degree of precision is entirely dependent upon precision instruments such as the Bausch & Lomb Contour Measuring Projector.

By projecting a magnified shadow image of a mechanical part upon a screen, this projector clearly reveals to

the naked eye errors of ten-thousandths of an inch. It permits many measurements that would otherwise be impossible except at a great expenditure of time and money. And today, if ever, speed and economy are vital to national defense!

Such instruments as the Contour Measuring Projector, like the many other Bausch & Lomb precision optical instruments used in science, industry and education have freed America from any dependence on European sources of supply.

BAUSCH & LOMB
OPTICAL CO. • ROCHESTER, NEW YORK
ESTABLISHED 1853

AN AMERICAN SCIENTIFIC INSTITUTION PRODUCING OPTICAL GLASS AND INSTRUMENTS FOR NATIONAL DEFENSE, EDUCATION, RESEARCH, INDUSTRY AND EYESIGHT CORRECTION

•First Glances at New Books

HORTICULTURE

GARDENS FOR VICTORY—Jean-Marie Putnam and Lloyd C. Coper—*Harcourt, Brace*, 221 p., illus., \$2.50. A book calculated to be of maximum assistance to the home gardener anxious to do his bit toward increasing food supplies and improving national health. The presentation is very methodical: planning, planting, maintenance, use. There are special chapters on gardening under glass, gardening for small children, gardening without soil, combating diseases and pests, etc. For the war-time gardener of one book, this is the book.

Science News Letter, March 14, 1942

MEDICINE

ANOXIA, Its Effect on the Body—Edward J. Van Lier—*Univ. of Chicago Press*, 269 p., \$3. A comprehensive review of the literature on a subject that has become of increasing interest to the layman and the general practicing physician as well as to the specialists studying oxygen want, a problem encountered not only in high altitude flying and mountaineering but also in diseases of the heart, circulation, blood and lungs.

Science News Letter, March 14, 1942

PHYSIOLOGY—PSYCHOLOGY

PHYSIOLOGICAL PSYCHOLOGY—S. R. Hathaway—*Appleton*, 335 p., diagrs., \$2.75. For students of clinical psychology, this provides a useful and well-rounded text on the functional anatomy of the nervous system. Interesting to the layman will be the short chapters on sleep, effects of hormones and other chemicals on behavior, intelligence, and psychosomatic relationships which take into account most of the current experimentation in these fields.

Science News Letter, March 14, 1942

PSYCHIATRY—MEDICINE

PSYCHIATRY IN MEDICAL EDUCATION—Franklin G. Ebaugh and Charles A. Rymer—*Commonwealth Fund*, 619 p., \$3.50. A comprehensive survey of psychiatric teaching as it exists today in medical schools and hospitals, with many recommendations for a closer cooperation between psychiatry and medicine.

Science News Letter, March 14, 1942

HOBBIES

WOODWORKING FOR FUN—Armand J. LaBerge—*Manual Arts Press*, 104 p., illus., \$2.25. All sorts of things that boys want, which they can make themselves;

kites, bows (two different types) and arrows, model boats, rollerscoots and speedscoots to give younger brothers and sisters, carved book ends. Diagrams and instructions are clear.

Science News Letter, March 14, 1942

HOROLOGY

IT'S ABOUT TIME—Paul M. Chamberlain—*Richard R. Smith*, 490 p., illus., \$7.50. A technical volume on watch-making; there is a collection of biographies of horologists, however, which is of more general interest. Illustrations of unique timepieces are unusually excellent.

Science News Letter, March 14, 1942

GEOGRAPHY

A NEW ATLAS OF CHINA, Land, Air and Sea Routes—Marthe Rajchman; Descriptive text by the Staff of Asia Magazine—*John Day*, 24 p., maps, \$1.50. As timely as a newspaper front page, this pictures an important sector of the Pacific war. Particularly interesting are a profile chart of the Burma Road and a map of air distances, as well as a map centered upon the Philippines.

Science News Letter, March 14, 1942

BOTANY—TECHNOLOGY

WOOD TECHNOLOGY, Constitution, Properties and Uses—Harry Donald Tiemann—*Pitman*, 316 p., illus., \$3.50. At a time when wood is coming back into its own, due partly to scarcity of metals, partly to improvements in wood treatment and woodworking, this book should find a large and appreciative audience. It goes into fundamentals—tells what wood is and how it is formed, and builds on this sound foundation a structure of compactly presented, pertinent information about modern uses of wood.

Science News Letter, March 14, 1942

METEOROLOGY

ECLIPSE METEOROLOGY With Special Reference to the Total Solar Eclipse of August 31, 1932.—Charles F. Brooks and others—*Blue Hill Meteorological Observatory, Harvard University*, 109 p., \$1.25. (Harvard Meteorological Studies, No. 5). When solar radiation is blocked off, even for the few minutes of an eclipse, very noticeable if transient effects on local weather can be observed. This study, the most detailed ever made on eclipse weather, will be of great interest not only to meteorologists and astronomers but to physical scientists generally.

Science News Letter, March 14, 1942

WAR

REMEMBER PEARL HARBOR!—Blake Clark—*Modern Age Books*, 127 p., \$1.25. See page 172.

Science News Letter, March 14, 1942

AERONAUTICS

AIRCRAFT SPOTTER—Lester Ott—*Harcourt, Brace*, 64 p., illus., \$1. For air-minded Americans who are trying to learn to distinguish friendly planes from those of the enemy.

Science News Letter, March 14, 1942

HORTICULTURE

HOME VEGETABLE GARDENING—Charles H. Nissley—*Rutgers Univ. Press*, 246 p., illus., \$1.50. A really astonishing quantity of good gardening information is compressed between the covers of this rather small book. It tells how and when to plant, how to combat pests and diseases, how to cultivate and fertilize; lists principal types of vegetables alphabetically, with pertinent discussion of their merits and uses; adds a section of garden herbs. If you are a Victory Gardener, here is your library.

Science News Letter, March 14, 1942

ANTHROPOLOGY

THE EXTREMITY BONES OF SINANTHROPUS PEKINENSIS—Franz Weidenreich—*Geol. Surv. of China* (Paleontologia Sinica, N.S., D, no. 5), 150 p., 34 pl. A valuable addition to the literature on Sinanthropus, giving comparative aspects of this ancient human species with more recent remains from China, as well as direct discussion and illustrations of the skeletal parts themselves. It is gratifying that continued publication has been possible, despite disturbed conditions in China.

Science News Letter, March 14, 1942

ENTOMOLOGY

THE FRUITFLIES OF THE GENUS ANASTREPHA—Alan Stone—*Govt. Print. Off.*, 112 p., 23 pl., 40c. (U. S. Dept. of Agriculture Misc. Pub. No. 459.) A compact monograph of an important insect pest genus.

Science News Letter, March 14, 1942

NUTRITION

NUTRITIONAL DEFICIENCIES, Diagnosis and Treatment—John B. Youmans and E. White Patton—*Lippincott*, 385 p., \$5. This book brings to the practicing physician a comprehensive and practical summary of present knowledge in this field.

Science News Letter, March 14, 1942